IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of — Atty. Docket: NL 020663

MICHEL PAUL BARBARA VAN BRUGGEN ET AL.

Confirmation No. 2504

Serial No. 10/520,311 — Group Art Unit: 1793

Filed: JANUARY 5, 2005 — Examiner: VIJAYAKUMAR, K.M.

Title: TRANSPARENT POLYCRYSTALLINE ALUMINUM OXIDE

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Board of Patent Appeals and Interferences
United States Patent and Trademark Office
P.O. Box 1450
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APPEAL BRIEF

Sir:

Appellants herewith respectfully present a Brief on Appeal as follows, having filed a Notice of Appeal on March 13, 2008:

REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee of record Koninklijke Philips Electronics N.V., a corporation of The Netherlands having an office and a place of business at Groenewoudseweg 1, Eindhoven, Netherlands 5621 BA.

RELATED APPEALS AND INTERFERENCES

Appellants and the undersigned attorney are not aware of any other appeals or interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 11-20 are pending in this application where claims 1-10 are canceled. Claims 1-10 are rejected in the Final Office Action mailed December 14, 2007. This rejection was upheld, in an Advisory Action that issued February 26, 2008. Claims 11-20 are the subject of this appeal.

STATUS OF AMENDMENTS

Appellants filed on February 11, 2008 an after final amendment in response to a Final Office Action dated December 14, 2007. The after final amendment did not include any amendments, but included an amendment to the specification which was entered. This Appeal Brief is in response to the Final Office Action mailed December 14, 2007, that finally rejected claims 11-20, which remain finally rejected in the Advisory Action mailed on February 26, 2008.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention, for example, as recited in independent claim 11, is directed to a polycrystalline alumina component. As described on page 3, lines 21-27 of the specification, the polycrystalline alumina component comprises an additive, where the polycrystalline alumina component has an average crystal size $\leq 2\mu m$, has a relative density higher than 99.95%, and is transparent with a real in-line transmission RIT $\geq$ 30% measured over an angular aperture of at most 0.5° at a sample thickness of 0.8mm and with a single wavelength of light λ. The additive comprises Mg oxide.

The present invention, for example, as recited in independent claim 14, is directed to a discharge lamp. As shown in FIG 1 and described on page 3, lines 21-27, and page 8, lines 5-22 of the specification, the discharge lamp comprises a discharge tube having a wall of a ceramic. The ceramic comprises a polycrystalline alumina component with an additive. The alumina of the polycrystalline alumina component has an average crystal size $\leq 2\mu m$, and a relative density higher than 99.95%, and is transparent with a real in-line transmission RIT $\geq$ 30% measured over an angular aperture of at most 0.5° at a sample thickness of 0.8mm and with a single wavelength of light λ. The additive comprises Mg oxide.

The present invention, for example, as recited in independent

claim 14, is directed to a method for forming a polycrystalline alumina component with an additive. As described on page 4, lines 1-13, and page 8, lines 5-22 of the specification, the method comprises preparing a slurry of corundum power with a mean grain size ≤0.2μm; and adding a dopant formed by a precursor containing Mg and oxides of Mg.

As described on page 4, lines 14-25, the slurry is cast in a mold, and the molded body thus formed is dried and sintered, and an HIP treatment is performed at a temperature of at least 1150°C for at least 2 hours.

As described on page 3, lines 21-27, the alumina of the component has an average crystal size ≤ 2μm, and a relative density higher than 99.95%, and is transparent with a real in-line transmission RIT ≥ 30% measured over an angular aperture of at most 0.5° at a sample thickness of 0.8mm and with a single wavelength of light λ, and wherein the additive comprises Mg oxide.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 11, 14 and 16 of U.S. Patent Application Serial No. 10/520,311 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent Publication No. 2003/0125189 (Castro), or over U.S. Patent No. 6,417,127 (Yamamoto), pr over EP 1053983 (Yamamoto-EP983).

ARGUMENT

Appellants respectfully request the Board to address the patentability of independent claims 11, 14 and 16, and further claims 12-13, 15 and 17-20 as depending from independent claims 11, 14 and 16, based on the requirements of independent claims 11, 14 and 16. This position is provided for the specific and stated purpose of simplifying the current issues on appeal. However, Appellants herein specifically reserve the right to argue and address the patentability of claims 12-13, 15 and 17-20 at a later date should the separately patentable subject matter of claims 12-13, 15 and 17-20 later become an issue. Accordingly, this limitation of the subject matter presented for appeal herein, specifically limited to discussions of the patentability of independent claims 11, 14 and 16 is not intended as a waiver of Appellants' right to argue the patentability of the further claims and claim elements at that later time.

Independent claims 11, 14 and 16 are said to be obvious over Castro, Yamamoto and Yamamoto-EP983.

As correctly noted in the Final Office Action on page 4, first full paragraph; page 7, first full paragraph; and page 9, last paragraph, Castro, Yamamoto and Yamamoto-EP983 are silent about a polycrystalline alumina component which is "**transparent** with a real in-line transmission **RIT • 30%** measured over an angular aperture of at most 0.5° at a sample thickness of 0.8mm and with a single wavelength of light λ," as recited in independent claim 11, and similarly recited in independent claims 14 and 16. (Illustrative emphasis provided) The Examiner alleges that the prior art ceramics have a similar composition to the inventive polycrystalline alumina component and thus should have similar properties and characteristics, citing *In re Spada*. However, *In re Spada* involved anticipation and not obviousness, where the court found the identity of the composition and method supported a lack of novelty. *In re Spada*, 911 F.2d 705, 707-08 (Fed. Cir. 1990). Here the issue is obviousness and not novelty.

Applicants respectfully submit that even assuming, arguendo, that the prior art ceramics have a "similar composition" as the polycrystalline alumina component recited in independent claims 11, 14 and 16, the fact remains that the prior art ceramics are not similar enough. Carbon and diamond have a "similar composition"

too, and yet have vastly different properties, including vastly different transmissive properties. The courts have noted that "generalization is to be avoided insofar as specific structures are alleged to be *prima facie* obvious one from the other." *In re Jones*, 958 F.2d 347,350 (Fed. Cir. 1992); *In re Grabiak*, 769 F.2d 729 , 734 (Fed. Cir. 1985). Castro, Yamamoto and Yamamoto-EP983 all specifically recite that their ceramics are **translucent** and do not disclose or suggest any ceramics having an **RIT • 30%**.

In particular, Castro specifically recites that "a substantial amount of the incident light should pass through the article, **albeit diffused**, to the base for reflection off of the tooth surface, ... Since the article is translucent rather than transparent ..." (Paragraph [0041], emphasis added) In addition, both Yamamoto and Yamamoto-EP983 specifically recite in the title a "**translucent** polycrystalline ceramic." (Emphasis added)

Further, as recited on page 3, lines 1-12 of the present specification, Yamamoto-EP983 discloses at best that for a "zirconia free microstructure the corresponding [RIT] value for a thickness d=0.8 mm is **25%**." (Page 3, lines 11-12 of the present specification; emphasis added) Surely, Yamamoto-EP983 would have disclosed a microstructure with an RIT of at least 30%, if the ceramic of Yamamoto-EP983 did indeed have such properties, particularly since Yamamoto-EP983 strives "to provide a **translucent**

polycrystalline ceramic having a good strength and hardness, capable of **transmitting light through the ceramic**." (Yamamoto-EP983, page 2, paragraph [0007]; emphasis added). The Examiner apparently tries to bridge the gap by suggesting that the admittedly undisclosed claimed feature of an **RIT • 30%** would be inherent in the prior art. However, inherency and obviousness are entirely different questions, as inherency is a doctrine of anticipation, not obviousness. *In re Sporeman*, 363 F.2d 444,448 (C.C.P.A. 1966). "That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown." *Id.*

The fact remains that the ceramics disclosed in Castro, Yamamoto and Yamamoto-EP983 are not similar enough to the polycrystalline alumina component as recited in independent claims 11, 14 and 16, as such ceramics do not have **RIT • 30%**. It is respectfully submitted that structures have a similar chemical composition may have different physical properties, such as depending on physical arrangement and/or manner of preparation, etc. The inventive polycrystalline alumina component is formed in such a way as to result in a polycrystalline alumina component that has a different structure with an **RIT • 30%**.

As admitted by the Examiner, nothing found in Castro, Yamamoto, Yamamoto-EP983, and combinations thereof, discloses or suggests the present invention as recited in independent claim 11,

and similarly recited in independent claims 14 and 16 which, amongst other patentable elements, recites (illustrative emphasis provided):

> the polycrystalline alumina component is transparent with a real in-line transmission **RIT • 30%** measured over an angular aperture of at most 0.5° at a sample thickness of 0.8mm and with a single wavelength of light λ, and wherein the additive comprises Mg oxide.

Any polycrystalline ceramics in Castro, Yamamoto, Yamamoto-EP983 is **translucent**. A polycrystalline alumina component which is **transparent** with a **real in-line transmission RIT • 30%** is nowhere taught or suggested in Castro, Yamamoto and Yamamoto-EP983, alone or in combinations. Accordingly, it is respectfully submitted that independent claims 11, 14 and 16 should be allowable, and allowance thereof is respectfully requested. In addition, it is respectfully submitted that claims 12-13, 15 and 17-20 should also be allowed at least based on their dependence from independent claims 11, 14 and 16.

In addition, Appellants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Appellants reserve the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of

the Examiner's statements are conceded.

CONCLUSION

The drawings do show features recited in claims 11-20 are patentable over Castro, Yamamoto and Yamamoto-EP983.

In view of the above, it is respectfully submitted that the Examiner's rejection of claims 11-20 should be reversed.

Respectfully submitted,

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CLAIMS APPENDIX

Claims 1-10 (Canceled)

11.(Previously Presented) A polycrystalline alumina component comprising an additive, wherein the polycrystalline alumina component has an average crystal size ≤ 2μm, has a relative density higher than 99.95%, and is transparent with a real in-line transmission RIT ≥ 30% measured over an angular aperture of at most 0.5° at a sample thickness of 0.8mm and with a single wavelength of light λ, and wherein the additive comprises Mg oxide.

12.(Previously Presented) The polycrystalline alumina component of claim 11, wherein the additive is present in an amount of at least 10ppm.

13.(Previously Presented) The polycrystalline alumina component of claim 11, wherein the additive is MgO in a quantity of at least 100ppm and at most 1000ppm.

14.(Previously Presented) A discharge lamp comprising a discharge tube having a wall of a ceramic, the ceramic comprising a

polycrystalline alumina component with an additive, the alumina of the polycrystalline alumina component having an average crystal size ≤ 2μm, and a relative density higher than 99.95%, and being transparent with a real in-line transmission RIT ≥ 30% measured over an angular aperture of at most 0.5° at a sample thickness of 0.8mm and with a single wavelength of light λ, the additive comprising Mg oxide.

15.(Previously Presented) The discharge lamp of claim 14 wherein the discharge tube has an ionizable filling containing a metal halide.

16.(Previously Presented) A method for forming a polycrystalline alumina component with an additive, the method comprising the acts of:

preparing a slurry of corundum power with a mean grain size ≤ 0.2μm;

adding a dopant formed by a precursor containing Mg and oxides of Mg;

casting the slurry in a mold;

drying and sintering of the molded body thus formed; and

performing an HIP treatment at a temperature of at least 1150°C for at least 2 hours;

wherein alumina of the component has an average crystal size ≤ 2μm, and a relative density higher than 99.95%, and is transparent with a real in-line transmission RIT ≥ 30% measured over an angular aperture of at most 0.5° at a sample thickness of 0.8mm and with a single wavelength of light λ, and wherein the additive comprises Mg oxide.

17.(Previously Presented) The method of claim 16, wherein after the adding act, the prepared slurry is slip cast in a mold.

18.(Previously Presented) The polycrystalline alumina component of claim 11, wherein the single wavelength of light λ is 645nm.

19.(Previously Presented) The discharge lamp of claim 14, wherein the single wavelength of light λ is 645nm.

20.(Previously Presented) The method of claim 16, wherein the single wavelength of light λ is 645nm.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None